

In the claims:

This listing of claims will replace all previous versions, and listings, of claims in the application.

1-20. (canceled)

21. (previously presented) A stent comprising:

a first square-like tubular end;

a second square-like tubular end;

a main body located between the first and second ends, the main body having a length L, a longitudinal axis, a first diameter for allowing the stent to be introduced into a vessel and a second expanded diameter, the main body comprised of:

a plurality of contiguous filaments arranged to form:

(i) a first segment propagating helically with respect to the longitudinal axis of the main body of the stent, the first segment having a repetitious pattern that comprises peaks and valleys and (ii) a second segment, the second segment also having a repetitious pattern and propagating helically with respect to the longitudinal axis of the main body; and

wherein the first and second segments are joined together by connecting elements that are integral portions of the first and second segments.

22. (previously presented) The stent of claim 21, wherein the first and second segments have different pitches.

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23. (previously presented) The stent of claim 21, wherein the first and second segments are generally parallel to each other.

24. (previously presented) The stent of claim 21, wherein the first and second segments cross each other.

25. (previously presented) The stent of claim 24, wherein the pattern of the first segment is distinct from the pattern of the second segment.

26. (previously presented) The stent of claim 21, wherein the stent is manufactured from a self-expanding material.

27. (previously presented) The stent of claim 21, wherein the stent is manufactured from a plastically deformable material.

28. (previously presented) The stent of claim 21, wherein the first and second segments have a circumferential dimension that is parallel to the circumference of the stent.

29. (previously presented) The stent of claim 28, wherein:

the first and second segments each have a helical length; and

the first and second segments also each have a total filament length that is longer than the length L of the main body.

30. (canceled)

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31. (previously presented) The stent of claim 21, wherein the stent is manufactured from a tube by removing material to form the plurality of contiguous filaments.

32. (previously presented) The stent of claim 31, wherein a laser is used to remove the material.

33. (previously presented) The stent of claim 21, wherein the repetitious pattern of at least one of the segments has an amplitude that varies.

34. (previously presented) The stent of claim 33, wherein the repetitious pattern is generally sinusoidal.

35. (previously presented) A stent that expands under radial force from a first diameter to a second diameter, the stent comprising:

a first helical segment comprised of a plurality of filament segments arranged to form a first repeating pattern, the first helical segment having a first pitch;

a second helical segment comprised of a plurality of filament segments arranged to form a second repeating pattern, the second helical segment having a second pitch;

a plurality of struts adjoining the first and second helical segments, wherein the struts are an integral part of the first and second helical segments.

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36. (previously presented) The stent of claim 35, wherein:

the first and second helical segments each have a circumferential dimension parallel to the circumference of the stent; and

at a plurality of points along each segment, the circumferential dimension of that segment enlarges when the stent is expanded.

37. (previously presented) A stent having an overall length L and comprising two end sections and a generally cylindrical shaped body disposed between the end sections, the body comprised of:

a plurality of contiguous filament segments forming a first repetitious pattern and propagating generally helically through the body, the first repetitious pattern having a first pitch; and

a plurality of connecting elements longitudinally joining one portion of the first repetitious pattern with a second portion of the first pattern, the connecting elements, along with portions of the first pattern, forming a second repeating pattern that propagates helically through the body and has a second pitch that is less than the first pitch.

38. (previously presented) The stent of claim 37, wherein the first and second patterns begin at one end section and terminate at the second end section.

39. (previously presented) The stent of claim 37, wherein the first and second patterns have a starting point distal of one

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end section and an ending point proximal of the other end section.

40. (previously presented) The stent of claim 37, wherein the first and second patterns each have a circumferential dimension and wherein the first and second patterns circumferentially expand when the stent is expanded.

41. (previously presented) The stent of claim 40, wherein:

the length of the filament segments comprising the first repeating helical pattern is greater than the overall stent length L ; and

the length of the filament segments comprising the second repeating helical pattern is greater than the overall stent length L .

42. (previously presented) The stent of claim 40, wherein the first and second patterns have helical lengths L_{hel1} and L_{hel2} , respectively and wherein the total filament length of the filament segments comprising the first segment is greater than L_{hel1} and the total filament length of the filament segments comprising the second filament is greater than L_{hel2} .

43. (previously presented) The stent of claim 40, wherein at least one of the first or second repeating patterns comprises a repetitiously changing amplitude.

44. (previously presented) The stent of claim 41 having square-like tubular ends.

45. (previously presented) The stent of claim 41, further comprising a first end section having a length L_{end1} and a second

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end section having a length L_{end2} , wherein L is greater than either L_{end1} or L_{end2} and $L_{end1} = L_{end2}$.

46. (previously presented) The stent of claim 45 having square-like tubular ends.

47. (previously presented) A stent comprising a generally tubular body having a proximal end and a distal end, the body having a substantially continuous structure comprised of:

a plurality of filament segments arranged to form a first repetitious pattern comprised of peaks and valleys and that advances substantially helically along the longitudinal axis of the stent;

a plurality of connecting segments connecting proximal portions of the first helically advancing pattern to distal portions of the first helically advancing pattern, wherein the connecting segments connect peaks to valleys; and

wherein the connecting segments and the peaks and valleys that they connect are comprised of a continuous piece of material.

48. (previously presented) The stent of claim 47, wherein at least some of the peaks and valleys are comprised of curvilinear filaments.

49. (previously presented) The stent of claim 48, wherein at least a portion of the first repetitious pattern is generally sinusoidal.

50. (previously presented) The stent of claim 47, wherein the connecting elements are staggered to form a second repetitious helical pattern.

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51. (previously presented) The stent of claim 50, wherein the connecting elements forming the second pattern are not contiguous.

52. (previously presented) The stent of claim 50, wherein the first and second repetitious helical patterns have opposing pitches.

53. (previously presented) The stent of claim 52, wherein the first and second repetitious helical patterns share common filament segments.

54. (previously presented) The stent of claim 53, wherein the stent is manufactured from a cylindrical hollow tube.

55. (previously presented) A stent comprising:

- a first end portion;

- a second end portion;

- a generally cylindrically shaped body disposed between the first and second end portions, the body comprised of:

- a plurality of expandable elements, each expandable element comprising:

- an undulating filament segment comprising:

- a first filament portion;

- a second filament portion;

- a third filament portion;

- a first peak having connecting the first filament portion to the second filament portion;

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a first valley connecting the second filament portion to the third filament portion, wherein the first valley and first peak have substantially the same widths and wherein the first peak is connected to only the first and second filament portions and wherein the first valley is connected to only the second and third filament portions; and

a plurality of connecting elements having midpoints, the connecting elements joining at least one of the expandable elements to another of the expandable elements; and

wherein a first imaginary line connecting the midpoints of a first set of at least three of the connecting elements forms a first imaginary helical line in the body of the stent and wherein a second imaginary line connecting the midpoints of a second set of at least three of the connecting elements forms a second imaginary helical line in the body of the stent, the second imaginary helical line being substantially parallel to the first imaginary helical line.

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56. (previously presented) The stent of claim 55, wherein the first, second, and third filament portions of at least some of the expandable elements are substantially parallel to the cylindrical axis of the body of the stent.

57. (previously presented) The stent of claim 55, wherein the expandable elements have the same general shape.

58. (previously presented) The stent of claim 57, wherein the expandable elements have the same general size.

59. (previously presented) The stent of claim 57, wherein the first, second, and third filament portions are substantially linear.

60. (previously presented) The stent of claim 57, wherein the expandable elements are generally sinusoidal in shape.

61. (previously presented) The stent of claim 60, wherein the first, second, and third filament portions are substantially linear.

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62. (previously presented) A generally cylindrical shaped stent having a longitudinal axis, the stent, when oriented with its longitudinal axis in a vertical direction, comprising:

- (i) a first expandable element comprised of an undulating filament segment comprised of at least one peak and at least one valley having substantially the same widths;
- (ii) a second expandable element comprised of an undulating filament segment comprised of at least one peak and at least one valley having substantially the same width, the second expandable element located above and to the left of the first expandable element;
- (iii) a first connecting element connecting the first expandable element to the second expandable element, the first connecting element being located to the left of the at least one peak and the at least one valley of the first expandable element and not being connected directly to the at least one peak and the at least one valley of the first expandable element, and the first connecting element being located to the right of the at least one peak and the at least one valley of the second expandable element, and the first connecting element not being connected directly to the at least one peak and the at least one valley of the second expandable element;

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(iv) a third expandable element comprised of an undulating filament segment having at least one peak and at least one valley having substantially the same widths, the third expandable element located above and to the left of the second expandable element; and

(v) a second connecting element connecting the second expandable element to the third expandable element, the second connecting element located to the left of the at least one peak and at least one valley of the second expandable element and not being connected directly to the at least one peak and at least one valley of the second expandable element, the second connecting element located to the right of the at least one peak and the at least one valley of the third expandable element and not connected directly to the at least one peak and the at least one valley of the third expandable element.

63-70. (cancelled)

71. (previously presented) The stent of claim 62, wherein the first, second, and third expandable elements have substantially the same shapes.

72. (previously presented) The stent of claim 71, wherein the first, second, and third expandable elements have substantially the same sizes.

73. (previously presented) The stent of claim 62, further comprising a helical segment comprised of:
the first, second, and third expandable elements; and
the first and second connecting elements.

74. (previously presented) The stent of claim 73, wherein the first, second, and third expandable elements are each comprised of at least three distinct generally linear filament segments that are substantially parallel to the longitudinal axis of the stent.

75. (previously presented) The stent of claim 74, wherein:
the peaks of the expandable elements are connected directly to two of the three distinct generally linear filament segments and to no other filament segments; and
the valleys of expandable elements are connected directly to two of the three distinct generally linear filament segments and to no other filament segments.

76. (previously presented) A stent comprising:

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a first end;

a second end;

a generally cylindrically shaped body disposed between the first and second ends, the body comprising:

a plurality of first helical segments, each helical segment comprised of:

a plurality of expandable elements, each expandable element comprised of:

a first filament portion;

a second filament portion;

a first valley portion connecting the first filament portion to the second filament portion;

a third filament portion;

a first peak portion connecting the second filament portion to the third filament portion; and

wherein the first valley portion and the first peak portion have the same approximate widths; and

a plurality of connecting elements connecting the first filament portion of one of the expandable elements to the third filament portion of another of the expandable elements.

77. (previously presented) The stent of claim 76, wherein the expandable elements have the same general shape.

78. (previously presented) The stent of claim 77, wherein the expandable elements have the same approximate size.

79. (previously presented) The stent of claim 78, further comprising a second filament segment comprised of an undulating portion having peaks and valleys, the second filament segment propagating helically and having an opposing pitch with a value different from that of the first helical segments.